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FURTHER NEW MAMMALS FROM BRITISH EAST AFRICA.

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Continued study of the Field Museum's collection of African mammals, especially of the difficult *Crociduræ*, has resulted in the conclusion that eleven further new species and subspecies should be added to the rapidly growing list of the Mammalia of British East Africa. With one exception, these have been compared with specimens of allied forms in the British Natural History Museum. Types and important specimens have been consulted also in the Academy of Natural Sciences of Philadelphia and the United States National Museum at Washington. It is a pleasure to acknowledge the courtesies of the officials of these institutions.

***Graphiurus parvus dollmani* subsp. nov.**

Type from Lukenya Mountain (Ulu Kenya Hills), British East Africa. No. 16722 Field Museum of Natural History. Adult female. Collected December 22, 1905, by E. Heller.

Characters. Similar to *Graphiurus parvus* in color but slightly larger in size and markedly different in cranial characters; skull larger throughout; braincase much deeper and decidedly elevated above the plane of the rostrum; molariform teeth broader. Upperparts pale wood brown to Isabella color, the hairs deep plumbeous basally, then narrowly buffy broccoli brown, then tipped with darker brown; sides similar to back, but inclining to cinnamon and then nearly pinkish or ochraceous buff along a narrow line between the color of the upperparts and the underparts; top of head like back, becoming slightly paler on the nose; a well-defined blackish area from the base of whiskers to and around eye; a slight buffiness just below the black bordering the lower anterior half of the eye; posterior cheeks below and in front of ear buffy; anterior cheeks below eye white, the uppermost hairs white to their bases, separated from those of the chin by hairs narrowly grayish basally; underparts creamy white, the hairs of the chin and anterior throat entirely white, those of the remaining underparts with broad slaty bases; pectoral region frequently stained with reddish brown; inner side of front legs and axillæ buffy;

feet white, tarsal joint dusky; tail brownish drab above, slightly paler below and finely vermiculated with whitish, certain white-tipped hairs of the under side sometimes showing from above as a narrow whitish border.

Measurements. Type: Total length 160; head and body 83; tail vertebrae 77; hind foot (c. u., dry) 15.8; ear 14. Skull of type: Greatest length 25; basilar length 18.3; zygomatic breadth 13.6; interorbital constriction 3.9; nasals 8.9; postpalatal length 10.5; diastema 5; depth from top of braincase to lower surface of audital bulla 10; length of upper tooththrow 2.9.

Remarks. Comparison of the above-described form with the type of *parvus* reveals considerable difference in cranial characters but such color differences as are observable seem due to the fact that the type of *parvus* was preserved originally in alcohol.

The new form is named for Mr. Guy Dollman, of the British Museum, who has lately devoted considerable time to a study of the genus *Graphiurus*.

***Thamnomys oblitus* sp. nov.**

Type from Voi, British East Africa. No 17123 Field Museum of Natural History. Adult female. Collected April 14, 1906, by E. Heller.

Characters. Allied to *Thamnomys macmillani* but tail decidedly longer and color somewhat deeper; skull slightly smaller. General coloration much as in *T. s. polionops*, but slightly paler with the rump more decidedly contrasted with the back, shoulders, and head. Anterior upperparts from crown to middle of back clay color slightly tinged with olivaceous; posterior back and rump bright ochraceous scarcely modified by scattered dusky-tipped hairs; forehead, nose, and sides of face olivaceous gray; underparts white distinctly tinged with strawcolor except on chin and sides of throat, all the hairs with white bases; feet pale buff, at least medially.

Measurements. Type: Total length 286; head and body 110; tail vertebrae 176; hind foot (c. u., dry) 22; ear 16. Skull of type: Greatest length 27.1; basilar length 20.5; zygomatic breadth 12.5; interorbital constriction 4.4; nasals 9.4; interparietal 8.7 x 4.8; postpalatal length 9.3; diastema 6.5; palatine slits 5.7; length upper tooththrow 3.8.

Remarks. The single specimen representing this species was by chance not included with the others recently taken to the British Museum for study. Therefore, no actual comparison with *T. macmillani* has been made, but the type of that species was carefully examined and is still fresh in mind.

Arvicanthis dorsalis maculosus subsp. nov.

Type from Voi, British East Africa. No. 17265 Field Museum of Natural History. Adult male. Collected April 22, 1906, by E. Heller.

Characters. Similar to *Arvicanthis dorsalis rosalia* but upperparts more grayish except at the base of the tail and the posterior part of the rump; sides, especially toward the flanks marked with fairly distinct broken rows of quadrate spots of clay color on a grizzled olivaceous tawny ground; nape and shoulders grizzled olivaceous; sides of neck and face similarly olivaceous but slightly paler, the deep russet ears sharply contrasted; underparts pure creamy white to roots of hairs. Skull larger and with decidedly heavier dentition than in *A. d. rosalia*.

Measurements. Type: Total length 258; head and body 118; tail vertebræ 140; hind foot 29.5; ear 17. Skull of type: Greatest length 31.6; basilar length 25.5; zygomatic breadth 15.7; nasals 12.2; interorbital constriction 4.7; postpalatal length 11.3; diastema 7.6; palatine slits 6; upper toothrow 5.9; greatest width m^{12} 2.1.

Remarks. The type and only specimen of *Arvicanthis d. rosalia* in the British Museum differs so markedly from our small series from British East Africa that the separation of the latter is scarcely to be avoided although the two forms are geographically near. The type of *rosalia* may perhaps be abnormal, but this scarcely seems probable, since it differs from our series not only in color but also in cranial and dental characters.

Mungos ichneumon funestus subsp. nov.

Type from Naivasha, British East Africa. No 17808 Field Museum of Natural History. Adult female. Collected February 1, 1906, by C. E. Akeley.

Characters. Similar in color to *Mungos ichneumon* of northern Egypt, the hairs of the upperparts being much more coarsely annulated than in *M. i. caffer* of South Africa. Size slightly smaller than in *M. ichneumon*; skull with shorter nasals and weaker dentition; width of incisive series reduced; pm^2 and pm^3 relatively weak and compressed; postorbital processes relatively broad and heavy.

Measurements. Type: Total length (dry skin, dressed) 1060; head and body 571; tail vertebræ 489. Skull of type: Greatest length 98; basilar length 90; zygomatic breadth 49.2; interorbital constriction 17.7; median length of nasals 18.9; width between outer sides of first upper premolars 16.7; width of upper incisive series 9.55; front, of canine to back of m^3 34.8; length pm^2 5.25; length pm^4 (oblique) 9.75; greatest thickness pm^2 2.5.

Remarks. The cranial and dental characters given above are constant in the small number of skulls examined. Seven adult skulls from East Africa and five from Egypt have been available. Apparently none of the South and West African forms need to be considered as all are different in color. *M. i. angolensis* Bocage is practically identical with the East African form in cranial characters but differs widely in color. *M. i. parvidens* Lonnberg from Lower Congo has even weaker teeth than *funestus* and as described is further characterized by small size, short tail, and short hair. *M. i. caffer* differs still further both in color and in cranial characters. Typical *ichneumon* of northern Egypt is therefore the only form with which East African material needs close comparison.

***Sylvisorex mundus* sp. nov.**

Type from Kijabe, British East Africa. No 16801 Field Museum of Natural History. Adult male. Collected January 24, 1906, by E. Heller.

Characters. Similar to *Sylvisorex granti* of Mount Ruwenzori; size larger; tail relatively shorter; braincase narrower and slightly deeper; rostrum more slender; second unicuspid relatively small. Skull and teeth smaller and braincase relatively wider than in *S. sorella*. Upperparts dark blackish slate; underparts slightly paler than upper; hairs of back 4-5 mm. in length; feet sooty brownish, darkest on the inside; tail blackish above, somewhat paler below.

Measurements. Type: Total length 129; head and body 70; tail vertebræ 59; hind foot 12.5. Skull of type: Greatest length 17.2; greatest breadth 8.45; postpalatal length 7.4; greatest width between outer sides of molars 5.3; length of upper toothrow 7.1.

Remarks. The types of the species allied to this form, *S. granti* and *S. sorella*, are both in alcohol, so it is not possible to determine their exact natural coloration, but they are sufficiently distinguished by cranial characters. Possibly further collections may demonstrate that all three are connected by gradations.

***Crocidura voi* sp. nov.**

Type from Voi, British East Africa. No. 16942 Field Museum of Natural History. Adult male. Collected April 12, 1906, by E. Heller.

Characters. Size rather large; tail relatively short, scarcely half as long as head and body; general color slaty above and dull yellowish or grayish white below, the light and dark areas quite sharply contrasted; upper lip extensively whitish; feet white. Skull large, long, and narrow; teeth heavier than in any other east African shrew except *nyansæ*; second unicuspid decidedly larger than third.

Measurements. Type and one topotype, respectively: Total length 136, 153; head and body 90, 116; tail vertebræ 46, 37; hind foot 14.5, 14. Skull of type: Greatest length 24.2; width of braincase 9.7; maxillary width 8.2; length of toothrow 11; i^1 to pm^4 5.7; alveolar length pm^4 2.3; breadth m^1 3.1; length molariform series 5.9.

Remarks. During a fairly critical examination of all the *Crocidura* in the British Natural History Museum, no species has been found having any close relationship to the one here described. Its very short tail combined with its sharply contrasted slaty and white coloration distinguish it externally and its narrow skull and heavy dentition characterize it otherwise.

***Crocidura parvipes* sp. nov.**

Type from Voi, British East Africa. No. 16890 Field Museum of Natural History. Adult male. Collected April 18, 1906, by E. Heller.

Characters. Size medium; hind foot and tail very short, the latter less than half the length of the head and body. Underparts brownish fawn color slightly broken with a fine speckling of paler approaching drab gray, about the same color as pale examples of *C. jacksoni*; underparts white tinged with creamy, the bases of the hairs pale slate gray; line of demarcation between upper- and underparts sharp, passing along the side of the face just below the eye through the ear (the upper part of the ear thus being brownish and the lower whitish) and along the sides above the foreleg to the thigh; feet and legs whitish; tail broadly whitish below, brownish above. Skull about the size of that of *C. jacksoni* but slightly shorter and broader with the teeth slightly shorter and broader and more crowded; third unicuspid slightly larger than second but appearing smaller in lateral view since its posterior third is hidden by the anterior cusp of pm^4 , the next tooth.

Measurements. Type: Total length 122; head and body 84; tail vertebræ 38; hind foot 11.5. Skull of type: Greatest length 20.7; breadth of braincase 9.5; maxillary breadth 7.1; length of upper toothrow 8.7; i^1 to pm^4 4.2; length of molariform series 4.75; width m^1 2.35.

Remarks. The coloration and proportions of this species suggest a possible relationship with *Crocidura bicolor* as represented by specimens from Caconda, Angola. But *C. bicolor* is a much smaller species with a relatively longer tail and decidedly smaller skull.

***Crocidura xantippe* sp. nov.**

Type from Voi, British East Africa. No. 16888 Field Museum of Natural History. Adult male. Collected April 15, 1906, by E. Heller.

Characters. Allied to *Crocidura argentata fischeri*, with which it agrees in the general color of the upperparts, but tail decidedly longer and more extensively dusky on the upper side. Upperparts in fresh pelage fawn color with a fine vermiculation of lighter (almost ecru drab); underparts and upper lip dull grayish white, the bases of the hairs mouse gray to smoke gray; feet white; tail above broadly dusky brownish, below whitish for proximal two-thirds, mixed dusky and whitish for terminal third. Skull similar to that of *fischeri* but smaller and with a more compressed rostrum and decidedly smaller teeth; second unicuspid very slightly smaller than third.

Measurements. Type: Total length 150; head and body 90; tail vertebræ 60; hind foot 15. Skull of type: Condyllo-incisive length 22; length of toothrow 9.6; maxillary width 6.8; greatest width of m¹ 2.3.

Remarks. The few differences between this species and *C. a. fischeri* are so pronounced that it is not possible at present to include it with that form as a subspecies of *argentata*. The difference in the size of the teeth is quite decided and there is no indication of gradation. The color, however, is about as in *fischeri* except that the tail is darker.

***Crocidura allex* sp. nov.**

Type from Naivasha, British East Africa. No. 16820 Field Museum of Natural History. Adult male. Collected January 31, 1906, by E. Heller.

Characters. Allied to *C. bottegi* and possibly to *C. cunninghamei*; size larger than in *bottegi* with larger skull and teeth; color lighter especially on underparts and feet; size somewhat smaller than in *cunninghamei*; skull shorter with a higher, more vaulted braincase; teeth smaller. Upperparts dull brown; underparts buffy gray; feet grayish, practically same color as underparts; pelage longer and coarser than in *cunninghamei*.

Measurements. Type: Total length 109; head and body 64; tail vertebræ 45; hind foot 12. Skull: Greatest length 17.1; greatest breadth 7.7; maxillary breadth 5.2; postpalatal length 7.9; toothrow 7.15; greatest width m¹ 1.7.

Remarks. The shape of the skull in this species is more like that of *bottegi* than that of *cunninghamei* and its teeth though larger are more like those of *bottegi*. *C. cunninghamei* has a longer, narrower skull and a flatter braincase, and its teeth are scarcely smaller than in small specimens of *hildegardae*.

***Crocidura fumosa schistacea* subsp. nov.**

Type from Lukenya Mountain, British East Africa. No. 16884

Field Museum of Natural History. Adult female. Collected December 15, 1905, by E. Heller.

Characters. Similar to *C. fumosa* but paler and less brownish in color especially on the underparts. Upperparts in fresh pelage dark mouse gray with a little light silvery ticking; underparts paler, the basal color slate color to blackish slate instead of slate black, the tips very pale broccoli brown, much paler than in *fumosa*; feet averaging considerably paler; tail decidedly more distinctly bicolor (in *fumosa* as a rule the tail is practically all dark or at most only very slightly lighter below).

Measurements. Type: Total length 145; head and body 93; tail vertebrae 52; hind foot (c. u.) 15. Skull of type: Greatest length 23.1; zygomatic breadth 10.1; postpalatal length 10.6; length of toothrow 10.2.

Remarks. This is in general a bluish gray shrew while true *fumosa* is a dark brownish one almost as dark below as above. Specimens from Nairobi tend more or less toward the new form but appear to be referable to *fumosa*.

***Crocidura turba zaodon* subsp. nov.**

Type from Nairobi, British East Africa. No. 16929 Field Museum of Natural History. Adult male. Collected December 2, 1905, by E. Heller.

Characters. Very similar to *C. turba* but slightly larger, with a slightly longer tail and somewhat heavier dentition. Color rather darker than in the type of *turba* especially on the underparts. Upperparts rich seal brown; underparts dark mummy brown; feet entirely dark blackish brown like upperparts; tail entirely blackish. Skull somewhat larger than in *turba* with a broader and relatively flatter braincase; teeth slightly larger and heavier throughout.

Measurements. Type: Total length 158; head and body 98; tail vertebrae 60; hind foot (c. u.) 18; ear 9. Average 10 topotypes: Total length 160 (155-165); head and body 99 (89-110); tail vertebrae 60 (56-65); hind foot 17 (16.5-18). Skull of type: Condylar-incisive length 24.3; breadth of braincase 10.4; maxillary breadth 7.4; length of upper toothrow 10.65; i^1 to pm^4 5.3; length molariform series 5.9; breadth m^1 2.5.









